

### Overview

## Alcatel-Lucent 7750 Service Router Series

### Models

Alcatel-Lucent 7750-SR7 Switch Fabric and Control Processor Module DC Power Chassis Starter Bundle	JL136A
Alcatel-Lucent 7750-SR12 Switch Fabric and Control Processor Module DC Power Chassis Starter Bundle	JL139A
Alcatel-Lucent 7750-SR12e Switch Fabric and Control Processor Module DC Power Chassis Starter Bundle	JL142A

### Key features

- **FLEXIBLE, SCALABLE, HIGH PERFORMANCE:** delivers high bandwidth, low latency at lowest cost per bit
- **USER, CONTENT & APPLICATION INTELLIGENCE:** service differentiation with non-stop routing and services
- **FIELD PROVEN OS:** Feature-rich, fault-tolerant operating system for enterprise and cloud services
- **OPERATIONAL EFFICIENCY:** common platform with service-aware network management, operation & reporting

### Product overview

The Alcatel-Lucent 7750 Service Router (SR) series delivers the performance, service richness and intelligence to drive the converged IP network edge. Leveraging 400 Gb/s FP3 network processing (NP) silicon technology, the portfolio scales capacity up to 9.6 Tb/s and delivers up to 36 x 100GE, 60 x 40GE or 360 GE ports. With support for a comprehensive suite of Layer 2 and Layer 3 routing capabilities, advanced traffic management, Hierarchical Quality of Service (H-QoS) and specialized service-aware application processing, this feature-rich multiservice routing platform enables the full range of advanced business, residential and mobile services without sacrificing performance. It integrates IPv4/IPv6, MPLS, Ethernet, Provider Backbone Bridge (PBB), and MPLS - Transport Profile (MPLS-TP) protocols with a broad range of Ethernet and multiservice interfaces. The 7750 SR platform supports redundant system hardware and line card redundancy for high availability and resilience. The comprehensive feature set enables a best-of-breed multiservice edge router that supports end-user, business, cloud and data center interconnect services for HP's target large enterprise and cloud service provider markets.

### Features and benefits

#### Quality of Service (QoS)

- **Hierarchical QoS (HQoS)**  
provides a built-in QoS engine that supports hierarchical QoS (HQoS) and can implement a hierarchical scheduling mechanism based on ports, user groups, users, and user services; also cooperates with MPLS traffic engineering (TE) to implement bandwidth reservation and scheduling based on tunnels and services
- **Weighted random early detection (WRED)/random early detection (RED)**  
delivers congestion avoidance capabilities through the use of queue management algorithms
- **Advanced classifier-based QoS**  
classifies traffic using multiple match criteria based on Layer 2, 3, and 4 information; applies QoS policies such as setting priority level and rate limit to selected traffic on a per-port or per-VLAN basis
- **Bandwidth shaping**
  - **Port-based rate limiting**  
provides per-port ingress-/egress-enforced increased bandwidth
  - **Classifier-based rate limiting**  
uses an access control list (ACL) to enforce increased bandwidth for ingress traffic on each port
  - **Reduced bandwidth**  
provides per-port, per-queue egress-based reduced bandwidth
- **Traffic policing**  
supports Committed Access Rate (CAR) and line rate

#### Virtual private network (VPN)

- **Layer 2 Tunneling Protocol (L2TP)**  
an industry standard-based traffic encapsulation mechanism supported by many common operating systems; will tunnel

### Overview

the Point-to-Point Protocol (PPP) traffic over the IP and non-IP networks; may use the IP/UDP transport mechanism in IP networks

- **Generic Routing Encapsulation (GRE)**

transports Layer 2 connectivity over a Layer 3 path in a secured way; enables the segregation of traffic from site to site

### Management

- **Command authorization**

leverages RADIUS to link a custom list of CLI commands to an individual network administrator's login; an audit trail documents activity

- **Command-line interface (CLI)**

provides a secure, easy-to-use CLI for configuring the module via SSH or a switch console; provides direct real-time session visibility

- **FTP, TFTP, and SFTP support**

offers different mechanisms for configuration updates; FTP allows bidirectional transfers over a TCP/IP network; trivial FTP (TFTP) is a simpler method using User Datagram Protocol (UDP); Secure File Transfer Protocol (SFTP) runs over an SSH tunnel to provide additional security

- **Network management**

SNMP v2c/v3 MIB-II with traps

- **Remote monitoring (RMON)**

uses standard SNMP to monitor essential network functions; supports events, alarm, history, and statistics group plus a private alarm extension group

- **SNMPv1, v2, and v3**

provide complete support of SNMP; provide full support of industry-standard Management Information Base (MIB) plus private extensions; SNMPv3 supports increased security using encryption

### Layer 3 routing

- **Layer 3 IPv4 routing**

provides routing of IPv4 at media speed; supports static routes, RIP and RIPv2, OSPF, IS-IS, and BGP

- **Layer 3 IPv6 routing**

provides routing of IPv6 at media speed; supports static routes, RIPng, OSPFv3, IS-ISv6, and MP-BGP

- **Dual IP stack**

maintains separate stacks for IPv4 and IPv6 to ease the transition from an IPv4-only network to an IPv6-only network design

- **Equal-Cost Multipath (ECMP)**

enables multiple equal-cost links in a routing environment to increase link redundancy and scale bandwidth

- **IPv6 tunnels over IPv4**

allows IPv6 infrastructure to be connected over legacy IPv4 networks

- **MPLS support**

provides extended support of MPLS, including MPLS VPNs and MPLS Traffic Engineering (MPLS TE)

- **Multiprotocol Label Switching (MPLS) Layer 3 VPN**

allows Layer 3 VPNs across a provider network; uses MP-BGP to establish private routes for increased security; supports RFC 2547bis multiple autonomous system VPNs for added flexibility

- **Multicast VPN**

supports Multicast Domain (MD) multicast VPN, which can be distributed on separate service cards, providing high performance and flexible configuration

- **Multiprotocol Label Switching (MPLS) Layer 2 VPN**

establishes simple Layer 2 point-to-point VPNs across a provider network using only MPLS Label Distribution Protocol (LDP); requires no routing and therefore decreases complexity, increases performance, and allows VPNs of non-routable protocols; uses no routing information for increased security; supports Circuit Cross Connect (CCC), Static Virtual Circuits (SVCs), Martini draft, and Kompella-draft technologies

- **Virtual Private LAN Service (VPLS)**

establishes point-to-multipoint Layer 2 VPNs across a provider network

### Overview

- **Multiprotocol Label Switching Traffic Engineering (MPLS TE)**  
Traffic Engineering (TE) is used to enhance traffic over large MPLS networks based on type of traffic and available resources; TE dynamically tunes traffic management attributes and enables true load balancing; MPLS TE supports route backup using Fast Reroute (FRR)
- **VPLS support**  
provides extended support of VPLS for data center to data center communication at Layer 2; provides support of hierarchical VPLS for scalability

### Security

- **Access control lists (ACLs)**  
provide IPv4 and IPv6 filtering based on source/destination IP address/subnet and source/destination TCP/UDP port number
- **Network address translation (NAT)**  
provides a method for translating private IP addresses to public IP addresses, reducing the number of IP addresses used, and isolates the enterprise addressing environment
- **Secure management access**  
delivers secure encryption of all access methods (CLI, GUI, or MIB) through SSHv2 and SNMPv3
- **Unicast Reverse Path Forwarding (URPF)**  
allows normal packets to be forwarded correctly, but discards the attaching packet due to lack of reverse path route or incorrect inbound interface; prevents source spoofing and distributed attacks; supports distributed UFPF

### Resiliency and high availability

- **Graceful restart**  
supports graceful restart for OSPF, IS-IS, BGP, LDP, and RSVP; the network remains stable during the active-standby switchover; after the switchover, the device quickly learns the network routes by communicating with adjacent routers; forwarding remains uninterrupted during the switchover to achieve nonstop forwarding (NSF)
- **Hot-swappable modules**  
permits modules and mini-GBICs to be added or swapped without interrupting the network
- **IP Fast Reroute Framework (FRR)**  
nodes are configured with backup ports and routes; local implementation requires no cooperation of adjacent devices, simplifying the deployment; solves the traditional convergence faults in IP forwarding; achieves restoration within 50 ms, with the restoration time independent of the number of routes and fast link switchovers without route convergence
- **Redundant design of main processing unit and power supply**  
increases the overall system availability
- **Separate data and control planes**  
provide greater flexibility and enable continual services
- **Virtual Router Redundancy Protocol (VRRP)**  
allows groups of two routers to dynamically back each other up to create highly available routed environments in IPv4 and IPv6 networks
- **Assured high availability**
  - **Resilient switch fabric**  
protection from a single failed fabric module, supporting total capacity by the remaining fabric module
  - **Optional redundant management**  
automatic failover for active and standby management modules
  - **Modular and distributed software**  
increase capability/capacity by using distributed hardware and software
  - **Optional redundant power supply**  
uninterrupted power
  - **No single point of failure architecture**  
separate control and management planes
- **Hitless software upgrades**

### Overview

allow patches to be installed without restarting the device, increasing network uptime and simplifying maintenance

### Software-defined networking

- **OpenFlow**  
supports OpenFlow 1.0 and 1.3 specifications to enable SDN by allowing separation of the data (packet forwarding) and control (routing decision) paths

### Multicast support

- **Internet Group Management Protocol (IGMP)**  
utilizes Any-Source Multicast (ASM) or Source-Specific Multicast (SSM) to manage IPv4 multicast networks; supports IGMPv1, v2, and v3
- **Protocol Independent Multicast (PIM)**  
defines modes of Internet IPv4 and IPv6 multicasting to allow one-to-many and many-to-many transmission of information; PIM Dense Mode (DM), Sparse Mode (SM), and Source-Specific Mode (SSM) are supported
- **Multicast Source Discovery Protocol (MSDP)**  
allows multiple PIM-SM domains to interoperate; is used for inter-domain multicast applications
- **Multicast Border Gateway Protocol (MBGP)**  
allows multicast traffic to be forwarded across BGP networks separately from unicast traffic

### Configuration

**Build To Order:** BTO is a standalone unit with no integration. BTO products ship standalone are not part of a CTO or Rack-Shippable solution.

#### ALU 7750-SR7 Starter Bundle

JL136A

##### Includes:

- 7750 SR 7-Slot Chassis with 7750 SR-7 175 Amp DC PEM-3 and 7750 SR-7 Enhanced Fan Tray + 7750 SR SFM5-7 + CPM5 Bundle.

See  
Configuration  
Note:1

##### Bundle Includes:

- (1) 3HE00272DB - CH-BN - 7750 SR-7 DC w/PEM3 + EFT
- (1) 3HE09261AA - SFM - 7750 SR SFM5-7 + CPM5
- Size: 8U

#### ALU 7750-SR12 Starter Bundle

JL139A

##### Includes:

- 7750 SR 12-Slot Chassis with 7750 SR-12 175 Amp DC PEM-3 and 7750 SR-12 Enhanced Fan Tray + 7750 SR SFM5-12 + CPM5 Bundle.

See  
Configuration  
Note:1

##### Bundle Includes:

- 3HE09260AA - SFM - 7750 SR SFM5-12 & CPM5
- 3HE00183CA - CH-BN - 7750 SR-12 w/PEM3 + EFT
- Size: 14U

#### ALU 7750-SR12e Starter Bundle

JL142A

##### Includes:

- 3HE07165AA - 7750 SR12e Integrated Chassis (1),
- 3HE08421AA - 7750 SR12e SFM5-12e (1),
- 3HE08423AA - 7750 SR CPM5 (1)
- 3HE08422AA - 7750 SR12e Mini-SFM5-12e (2),
- 3HE07114AA - 7x50 SR/XRS APEQ (5)
- Size: 22U

See  
Configuration  
Note:1

#### Configuration Rules:

##### Note 1

Quote and Config tools: Require "Yes" and "No" Check Boxes when attempting to Configure this Switch, and force a user to pick one of the following:

"Yes, this order is for a US Government agency." "United States Government" means any person or entity that constitutes or officially represents a federal department, agency, branch, office, or other instrumentality of the government of the United States of America, including its territories ("U.S."), whether the person or entity is located in the U.S. or elsewhere (worldwide)."

"No, this order is not for a US Government agency." "United States Government" means any person or entity that constitutes or officially represents a federal department, agency, branch, office, or other instrumentality of the government of the United States of America, including its territories ("U.S."), whether the person or entity is located in the U.S. or elsewhere (worldwide). "

Actions based on which Check Box is selected:

If "Yes" is selected, display the error "HP and HP Partners are not authorized to sell ALU Products and/or Services directly or indirectly to the United States Government or its agencies, whether or not located in the Sales Territory. "United States Government" means any person or entity that constitutes or officially represents a federal department, agency, branch, office, or other instrumentality of the government of the United States of

### Configuration

America, including its territories ("U.S."), whether the person or entity is located in the U.S. or elsewhere (worldwide). "and prevent the products from quoting if the checkbox is checked.

If "No" is selected, allow the products to be quoted, if the checkbox is checked.

### Chassis Expansion Kits

#### ALU 7750 SR SFM5-7 and CPM5 Bundle

JL137A

Includes:

- 7750 SR SFM5-7 & CPM5, one (1) required per 7750 SR7 slot Shelf, up to two (2) per 7750 SR7 slot Shelf for CPU and fabric redundancy

See  
Configuration  
Note:1

Bundle includes:

- (1) 3HE08429AA - SFM - 7750 SR SFM5-7
- (1) 3HE08423AA - CPM - 7750 SR CPM5

#### ALU 7750 SR SFM5-12 and CPM5 Bundle

JL140A

Includes:

- 7750 SR SFM5-12 & CPM5, one (1) required per 7750 SR12 slot Shelf, up to two (2) per 7750 SR12 slot Shelf for CPU and fabric redundancy

See  
Configuration  
Note:2

Bundle includes:

- (1) 3HE08428AA - SFM - 7750 SR SFM5-12
- (1) 3HE08423AA - CPM - 7750 SR CPM5

#### ALU 7750 SR SFM5-12e and CPM5 Bundle

JL143A

Includes:

- 7750 SR SFM5-12e & CPM5, one (1) required per 7750 SR12e slot Shelf, up to two (2) per 7750 SR12e slot Shelf for CPU and fabric redundancy

See  
Configuration  
Note:3

Bundle Includes:

- 3HE08421AA - 7750 SR12e SFM5-12e (1),
- 3HE08423AA - 7750 SR CPM5 (1)

#### Configuration Rules:

Note 1 This bundle is supported on this starter bundle:  
JL136A - ALU 7750-SR7 Starter Bundle

Note 2 This bundle is supported on this starter bundle:  
JL139A - ALU 7750-SR12 Starter Bundle

Note 3 This bundle is supported on this starter bundle:  
JL142A - ALU 7750-SR12e Starter Bundle

#### Remarks:

Configurators: Warn that only 1 Expansion kit is supported per Router, but allow additional units for spares.

### Modules

JL136A (std 0 // max 5) User Selection (min 0 // max 5)

### Configuration

JL139A (std 0 // max 10) User Selection (min 0 // max 10)

JL142A (std 0 // max 9) User Selection (min 0 // max 9)

ALU 7x50 1p 100GE 10p 10GE Mod VPRN Bndl  
 1 CFP 100-GbE ports (min=0 \ max=99 CFP Transceivers)  
 10 SFP+ 10-GbE ports (min=0 \ max=99 SFP+ Transceivers)

JL145A  
 See  
 Configuration  
 Note:1, 3

ALU 7x50 3p 40GE 20p GE Mod 8 VPRN Bndl  
 • 3 QSFP+ 40-GbE ports (min=0 \ max=99 CFP Transceivers)  
 • 20 SFP 1-GbE ports (min=0 \ max=99 SFP Transceivers)

JL146A  
 See  
 Configuration  
 Note:2, 4

ALU 7x50 20p 10GE SFP+ Mod 8 VPRN Bndl  
 • 20 SFP+ 10-GbE ports (min=0 \ max=99 SFP+ Transceivers)

JL147A  
 See  
 Configuration  
 Note:3

ALU 7x50 12p 10GE SFP+ Mod 8 VPRN Bndl  
 • 12 SFP+ 10-GbE ports (min=0 \ max=99 SFP+ Transceivers)

JL148A  
 See  
 Configuration  
 Note:3

ALU 7x50 10p 10GE 20p GE Mod 8 VPRN Bndl  
 • 10 SFP+ 10-GbE ports (min=0 \ max=99 SFP+ Transceivers)  
 • 20 SFP 1-GbE ports (min=0 \ max=99 SFP Transceivers)

JL149A  
 See  
 Configuration  
 Note:3, 4

ALU 7x50 48p GE SFP Mod 8 VPRN Bndl  
 • 48 SFP 1-GbE ports (min=0 \ max=99 SFP Transceivers)

JL150A  
 See  
 Configuration  
 Note:4

#### Configuration Rules:

Note 1                    The following Transceivers install into this Module:  
 JL153A - ALU 7x50 1p 100G LR4 CFP Transceiver  
 JL154A - ALU 7x50 1p 100G SR10 CFP Transceiver

Note 2                    The following Transceivers install into this Module:  
 JL155A - ALU 7x50 1p 40G LR4 QSFP+ Transceiver

Note 3                    The following Transceivers install into this Module:  
 JL156A - ALU 7x50 1p 10G SR SFP+ Transceiver  
 JL157A - ALU 7x50 1p 10G LR SFP+ Transceiver

Note 4                    The following Transceivers install into this Module:  
 JL158A - ALU 7x50 1p 1000BASE-SX SFP Transceiver  
 JL159A - ALU 7x50 1p 1000BASE-LX SFP Transceiver  
 JL160A - ALU 7x50 1p 1000BASE-TX SFP Transceiver

### Configuration

#### Remarks:

Configurators: Do not restrict the number of transceivers quoted to a module to allow for spares.

### Transceivers

#### SFP Transceivers

ALU 7x50 1p 1000BASE-SX SFP Transceiver	JL158A
ALU 7x50 1p 1000BASE-LX SFP Transceiver	JL159A
ALU 7x50 1p 1000BASE-TX SFP Transceiver	JL160A

#### SFP+ Transceivers

ALU 7x50 1p 10G SR SFP+ Transceiver	JL156A
ALU 7x50 1p 10G LR SFP+ Transceiver	JL157A

#### QSFP+ Transceivers

ALU 7x50 1p 40G LR4 QSFP+ Transceiver	JL155A
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#### CFP Transceivers

ALU 7x50 1p 100G LR4 CFP Transceiver	JL153A
ALU 7x50 1p 100G SR10 CFP Transceiver	JL154A

### Internal Power Supplies

JL136A (std 0 // max 1) User Selection (min 0 // max 1) per switch enclosure

JL139A (std 0 // max 1) User Selection (min 0 // max 1) per switch enclosure

JL142A (std 0 // max 2) User Selection (min 0 // max 2) per switch enclosure

ALU 7750 SR-7/12e AC Power Bundle	JL138A
<ul style="list-style-type: none"> <li>Each AC Bundle is 1 U high (and contains 4 AC Power Supplies 2.5KW each)</li> </ul>	See Configuration Note:1
ALU 7750 SR-12 AC Power Bundle	JL141A
<ul style="list-style-type: none"> <li>Each AC Bundle is 2 U high (and contains 8 AC Power Supplies 2.5KW each)</li> </ul>	See Configuration Note:2

#### Configuration Rules:

Note 1 This power supply is only supported on JL136A and JL142A



### Configuration

**Note 2** This power supply is only supported on JL139A

#### Remarks:

Configurator Blue Text: The AC Power bundles are external to the router chassis. They are connected to the internal power modules of JL136A, JL139A and JL142A. Routers JL136A, JL139A and JL142A support the use of facility DC Power as standard, and only require the AC Power Bundles if the customer desires to use AC Power.

Configurator Blue Text: For JL142A (SR12e), no more than 2 AC power bundles (JL141A) per chassis are required to power the worst case scenario with existing HPN interfaces, if AC version chosen.

Configurators: Do not restrict the number of AC Bundles quoted to a chassis to allow for spares.

### Site Survey

(Switches JL136A, JL139A, JL142A) System (std 0 // max 1) User Selection (min 1 // max 1) for first switch on a multi switch configuration

ALU 7750 SR Site Survey Trigger Svc

JL161A

#### Remarks:

Configurators: Only first switch in multi switch configurations should default quantity 1 JL161A

### Software/Licenses

(Switches JL136A, JL139A, JL142A) System (std 0 // max 1) User Selection (min 1 // max 1) per switch

ALU 7750 Release 13.0 Software E-LTU

JL144AAE

(Switches JL136A, JL139A, JL142A) System (std 0 // max 10,000) User Selection (min 0 // max 10,000) per switch

ALU 7750 SR Extended TS and RFE Svc

JL162A

ALU 7750 SR Install/Integration Svc

JL163A

ALU 7750 SR Software Subscription Svc

JL164A

(Modules JL145A, JL146A, JL147A, JL148A, JL149A, JL150A ) System (std 0 // max 1) User Selection (min 0 // max 1) per module

ALU 7x50 IMM 50Gb/s Full VPRN E-LTU

JL151AAE

- This is an upgrade from 8 VPRN to full VPRN capabilities.

See  
Configuration  
Note:1

### Configuration

ALU 7x50 IMM 200Gb/s Full VPRN E-LTU

- This is an upgrade from 8 VPRN to full VPRN capabilities.

JL152AAE  
See  
Configuration  
Note:2

#### Configuration Rules:

Note 1                      This E-LTU is only supported on JL150A

Note 2                      This E-LTU is only supported on JL145A, JL146A, JL147A, JL148A, JL149A

### Technical Specifications

#### Alcatel-Lucent 7750 SR7 Switch Fabric and Control Processor Module DC Power Chassis Starter Bundle (JL136A)

Included accessories	1 Alcatel-Lucent 7750 SR SFM5-7 Switch Fabric Module and CPM5 Control Processor Module Bundle (JL137A)		
I/O ports and slots	5 I/O module slots Supports a maximum of 5 100GbE ports or 15 40GbE ports or 100 10GbE ports or 240 Gigabit Ethernet ports, or a combination		
Additional ports and slots	2 Integrated SF/CPM (Switch Fabric and Control Processor Module) slots		
Physical characteristics	Dimensions	17.52(w) x 25.51(d) x 14.02(h) in (44.5 x 64.8 x 35.6 cm) (8U height)	
	Weight	90.39 lb (41 kg)	
	Full configuration weight	155.42 lb (70.5 kg)	
Memory and processor	Cavium 10-core @ 1.5 GHz, 16 GB DDR3 DIMM; storage: Default one 2GB compact flash with single SF/CPM, Maximum six 2GB compact flashes with two SF/CPMs		
Mounting and enclosure	EIA-standard 19 in. rack		
Performance	Throughput	up to 2976 Mpps	
	Routing/Switching capacity	2 Tbps	
	Switch fabric speed	2 Tbps	
	Routing table size	22000000 entries (IPv4), 12000000 entries (IPv6)	
	Forwarding table size	2000000 entries (IPv4), 1000000 entries (IPv6)	
Environment	Operating temperature	41°F to 104°F (5°C to 40°C)	
	Operating relative humidity	5% to 85%	
	Altitude	up to 13,123 ft (4 km)	
Electrical characteristics	Voltage	-40 to -72 VDC, rated (depending on power supply chosen)	
	Current	93 A	
	Maximum power rating	3750 W	
	Notes	Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated. Optional external 200 to 240 VAC power supply (JL138A) available.	
Safety	EN 60825-1 Safety of Laser Products-Part 1; EN 60825-2 Safety of Laser Products-Part 2; EN 60950-1; CSA; IEC 60825-1; IEC 60950-1, Second Edition; UL 60950-1 2nd Edition		
Emissions	FCC part 15 Class A; BSMI CNS 13438; FCC Part 15, Subpart B; EN 61000-3-2; EN 61000-3-3; AS/NZS CISPR 22:2009; VCCI V-4/2012.04; ETSI EN 300 386 V1.6.1(2012-09); CISPR 22:2008 Class A; EN 55022:2010 Class A; ICES-003 Issue5 Class A; VCCI V-3/2013.04 Class A		
Immunity	Generic	ETSI EN 300 386 V1.6.1	
	EN	EN 55024, CISPR 24; EN 61000-6-2:2005/AC:2005	
	ESD	EN 61000-4-2	
	Radiated	EN 61000-4-3	
	EFT/Burst	EN 61000-4-4	
	Surge	EN 61000-4-5	
	Conducted	EN 61000-4-6	
	Power frequency	EN 61000-4-8	

### Technical Specifications

	<b>magnetic field</b>	
	<b>Voltage dips and interruptions</b>	EN 61000-4-11
	<b>Harmonics</b>	EN 61000-3-2, IEC 61000-3-2
	<b>Flicker</b>	EN 61000-3-3, IEC 61000-3-3
<b>Management</b>	Command-line interface; Out-of-band management (serial RS-232c); Out-of-band management (RJ-45 Ethernet); SNMP manager; Telnet; FTP; In-line and out-of-band	
<b>Notes</b>	Safety standards and compliance agency certifications Safety • EN 60950-1 2nd Ed CE Mark • IEC 60950-1 2nd Ed CB Scheme • CSA/UL 60950-1 2nd Ed NRTL • FDA CDRH 21-CFR 1040 • IEC/EN 60825-1 • IEC/EN 60825-2 Maximum ports are calculated based on the Integrated Media Modules (IMM) which HP offers. Alcatel-Lucent has other interface modules that provide higher port density and maximum ports for the system.	
<b>Services</b>	Refer to the HP website at <a href="http://www.hp.com/networking/services">www.hp.com/networking/services</a> for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.	

### Alcatel-Lucent 7750 SR12 Switch Fabric and Control Processor Module DC Power Chassis Starter Bundle (JL139A)

<b>Included accessories</b>	1 Alcatel-Lucent 7750 SR SFM5-12 Switch Fabric Module and CPM5 Control Processor Module Bundle (JL140A)	
<b>I/O ports and slots</b>	10 I/O module slots Supports a maximum of 10 100GbE ports or 30 40GbE ports or 200 10GbE ports or 480 Gigabit Ethernet ports, or a combination	
<b>Additional ports and slots</b>	2 Integrated SF/CPM (Switch Fabric and Control Processor Module) slots	
<b>Physical characteristics</b>	<b>Dimensions</b>	17.52(w) x 25.39(d) x 24.49(h) in (44.5 x 64.5 x 62.2 cm) (14U height)
	<b>Weight</b>	124.34 lb (56.4 kg)
	<b>Full configuration weight</b>	343.26 lb (155.7 kg)
<b>Memory and processor</b>	Cavium 10-core @ 1.5 GHz, 16 GB DDR3 DIMM; storage: Default one 2GB compact flash with single SF/CPM, Maximum six 2GB compact flashes with two SF/CPMs	
<b>Mounting and enclosure</b>	EIA-standard 19 in. rack	
<b>Performance</b>	<b>Throughput</b>	up to 5952 Mpps
	<b>Routing/Switching capacity</b>	4 Tbps
	<b>Switch fabric speed</b>	4 Tbps
	<b>Routing table size</b>	22000000 entries (IPv4), 12000000 entries (IPv6)
	<b>Forwarding table size</b>	2000000 entries (IPv4), 1000000 entries (IPv6)
<b>Environment</b>	<b>Operating temperature</b>	41°F to 104°F (5°C to 40°C)
	<b>Operating relative humidity</b>	5% to 85%
	<b>Altitude</b>	up to 13,123 ft (4 km)
<b>Electrical characteristics</b>	<b>Voltage</b>	-40 to -72 VDC, rated (depending on power supply chosen)
	<b>Current</b>	162 A
	<b>Maximum power rating</b>	6480 W
	<b>Notes</b>	Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure

### Technical Specifications

	with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated. Optional external 200 to 240 VAC power supply (JL141A) available.	
<b>Safety</b>	EN 60825-1 Safety of Laser Products-Part 1; EN 60825-2 Safety of Laser Products-Part 2; EN 60950-1; CSA; IEC 60825-1; UL 60950-1, 2nd Edition; IEC 60950-1, Second Edition	
<b>Emissions</b>	FCC part 15 Class A; BSMI CNS 13438; FCC Part 15, Subpart B; EN 61000-3-2; EN 61000-3-3; AS/NZS CISPR 22:2009; VCCI V-4/2012.04; ETSI EN 300 386 V1.6.1(2012-09); CISPR 22:2008 Class A; EN 55022:2010 Class A; ICES-003 Issue5 Class A; VCCI V-3/2013.04 Class A	
<b>Immunity</b>	<b>Generic</b>	ETSI EN 300 386 V1.6.1
	<b>EN</b>	EN 55024, CISPR 24; EN 61000-6-2:2005/AC:2005
	<b>ESD</b>	EN 61000-4-2
	<b>Radiated</b>	EN 61000-4-3
	<b>EFT/Burst</b>	EN 61000-4-4
	<b>Surge</b>	EN 61000-4-5
	<b>Conducted</b>	EN 61000-4-6
	<b>Power frequency magnetic field</b>	EN 61000-4-8
	<b>Voltage dips and interruptions</b>	EN 61000-4-11
	<b>Harmonics</b>	EN 61000-3-2, IEC 61000-3-2
	<b>Flicker</b>	EN 61000-3-3, IEC 61000-3-3
<b>Management</b>	Command-line interface; Out-of-band management (serial RS-232c); Out-of-band management (RJ-45 Ethernet); SNMP manager; Telnet; FTP; In-line and out-of-band	
<b>Notes</b>	Safety standards and compliance agency certifications Safety • EN 60950-1 2nd Ed CE Mark • IEC 60950-1 2nd Ed CB Scheme • CSA/UL 60950-1 2nd Ed NRTL • FDA CDRH 21-CFR 1040 • IEC/EN 60825-1 • IEC/EN 60825-2 Maximum ports are calculated based on the Integrated Media Modules (IMM) which HP offers. Alcatel-Lucent has other interface modules that provide higher port density and maximum ports for the system.	
<b>Services</b>	Refer to the HP website at <a href="http://www.hp.com/networking/services">www.hp.com/networking/services</a> for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.	

### Alcatel-Lucent 7750 SR12e Switch Fabric and Control Processor Module DC Power Chassis Starter Bundle (JL142A)

<b>Included accessories</b>	1 Alcatel-Lucent 7750 SR SFM5-12e Switch Fabric Module and CPM5 Control Processor Module Bundle (JL143A)	
<b>I/O ports and slots</b>	9 I/O module slots Supports a maximum of 9 100GbE ports or 27 40GbE ports or 180 10GbE ports or 432 Gigabit Ethernet ports, or a combination	
<b>Additional ports and slots</b>	2 Integrated SF/CPM (Switch Fabric and Control Processor Module) slots 2 Mini SFM (Switch Fabric Module) slots	
<b>Physical characteristics</b>	<b>Dimensions</b>	17.52(w) x 30(d) x 38.5(h) in (44.5 x 76.2 x 97.8 cm) (22U height)
	<b>Weight</b>	175.05 lb (79.4 kg)
	<b>Full configuration weight</b>	550.05 lb (249.5 kg)
<b>Memory and processor</b>	Cavium 10-core @ 1.5 GHz, 16 GB DDR3 DIMM; storage: Default one 2GB compact flash with single SF/CPM, Maximum six 2GB compact flashes with two SF/CPMs	
<b>Mounting and enclosure</b>	EIA-standard 19 in. rack	

### Technical Specifications

<b>Performance</b>	<b>Throughput</b>	up to 10713.6 Mpps
	<b>Routing/Switching capacity</b>	7.2 Tbps
	<b>Switch fabric speed</b>	9.6 Tbps
	<b>Routing table size</b>	22000000 entries (IPv4), 12000000 entries (IPv6)
	<b>Forwarding table size</b>	2000000 entries (IPv4), 1000000 entries (IPv6)
<b>Environment</b>	<b>Operating temperature</b>	41°F to 104°F (5°C to 40°C)
	<b>Operating relative humidity</b>	5% to 85%
	<b>Altitude</b>	up to 13,123 ft (4 km)
<b>Electrical characteristics</b>	<b>Voltage</b>	-40 to -72 VDC, rated (depending on power supply chosen)
	<b>Current</b>	60 A
	<b>Maximum power rating</b>	12000 W
	<b>Notes</b>	Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated. Optional external 200 to 240 VAC power supply (JL138A) available.
<b>Safety</b>	EN 60825-1 Safety of Laser Products-Part 1; EN 60825-2 Safety of Laser Products-Part 2; EN 60950-1; CSA; IEC 60825-1; IEC 60950-1, Second Edition; UL 60950-1 2nd Edition	
<b>Emissions</b>	FCC part 15 Class A; BSMI CNS 13438; FCC Part 15, Subpart B; EN 61000-3-2; EN 61000-3-3; AS/NZS CISPR 22:2009; VCCI V-4/2012.04; ETSI EN 300 386 V1.6.1(2012-09); CISPR 22:2008 Class A; EN 55022:2010 Class A; ICES-003 Issue5 Class A; VCCI V-3/2013.04 Class A	
<b>Immunity</b>	<b>Generic</b>	ETSI EN 300 386 V1.6.1
	<b>EN</b>	EN 55024, CISPR 24; EN 61000-6-2:2005/AC:2005
	<b>ESD</b>	EN 61000-4-2
	<b>Radiated</b>	EN 61000-4-3
	<b>EFT/Burst</b>	EN 61000-4-4
	<b>Surge</b>	EN 61000-4-5
	<b>Conducted</b>	EN 61000-4-6
	<b>Power frequency magnetic field</b>	EN 61000-4-8
	<b>Voltage dips and interruptions</b>	EN 61000-4-11
	<b>Harmonics</b>	EN 61000-3-2, IEC 61000-3-2
	<b>Flicker</b>	EN 61000-3-3, IEC 61000-3-3
<b>Management</b>	Command-line interface; Out-of-band management (serial RS-232c); Out-of-band management (RJ-45 Ethernet); SNMP manager; Telnet; FTP; In-line and out-of-band	
<b>Notes</b>	Safety standards and compliance agency certifications Safety • EN 60950-1 2nd Ed CE Mark • IEC 60950-1 2nd Ed CB Scheme • CSA/UL 60950-1 2nd Ed NRTL • FDA CDRH 21-CFR 1040 • IEC/EN 60825-1 • IEC/EN 60825-2 Maximum ports are calculated based on the Integrated Media Modules (IMM) which HP offers. Alcatel-Lucent has other interface modules that provide higher port density and maximum ports for the system.	
<b>Services</b>	Refer to the HP website at <a href="http://www.hp.com/networking/services">www.hp.com/networking/services</a> for details on the service-level	

### Technical Specifications

descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.

#### Standards and protocols

(applies to all products in series)

#### BGP

RFC 1772 Application of the BGP  
 RFC 1965 BGP-4 confederations  
 RFC 1997 BGP Communities Attribute  
 RFC 2385 BGP Session Protection via TCP MD5  
 RFC 2439 BGP Route Flap Damping  
 RFC 2918 Route Refresh Capability  
 RFC 3107 Support BGP carry Label for MPLS  
 RFC 3392 Capabilities Advertisement with BGP-4  
 RFC 4271 A Border Gateway Protocol 4 (BGP-4)  
 RFC 4360 BGP Extended Communities Attribute  
 RFC 4456 BGP Route Reflection: An Alternative to Full Mesh Internal BGP (IBGP)  
 RFC 4486 Subcodes for BGP Cease Notification Message  
 RFC 4724 Graceful Restart Mechanism for BGP  
 RFC 4760 Multiprotocol Extensions for BGP-4  
 RFC 4893 BGP Support for Four-octet AS Number Space  
 RFC 5065 Autonomous System Confederations for BGP  
 RFC 5291 Outbound Route Filtering Capability for BGP-4  
 RFC 5492 Capabilities Advertisement with BGP-4

#### Device management

RFC 1157 SNMPv1/v2c  
 RFC 2452 MIB for TCP6  
 RFC 2573 (SNMPv3 Applications)  
 SSHv1/SSHv2 Secure Shell  
 TACACS/TACACS+

#### General protocols

RFC 768 UDP  
 RFC 791 IP  
 RFC 792 ICMP  
 RFC 793 TCP  
 RFC 826 ARP  
 RFC 854 TELNET  
 RFC 951 BOOTP  
 RFC 1058 RIPv1  
 RFC 1332 The PPP Internet Protocol Control Protocol (IPCP)  
 RFC 1350 TFTP Protocol (revision 2)  
 RFC 1377 The PPP OSI Network Layer Control Protocol (OSINLCP)  
 RFC 1519 CIDR  
 RFC 1534 DHCP/BOOTP Interoperation  
 RFC 1542 BOOTP  
 RFC 1638 PPP Bridging Control Protocol (BCP)  
 RFC 1661 The Point-to-Point Protocol (PPP)  
 RFC 1662 PPP in HDLC-like Framing

#### IPv6

RFC 1981 IPv6 Path MTU Discovery  
 RFC 2375 IPv6 Multicast Address Assignments  
 RFC 2460 IPv6 Specification  
 RFC 2461 IPv6 Neighbor Discovery  
 RFC 2462 IPv6 Stateless Address Auto-configuration  
 RFC 2464 Transmission of IPv6 over Ethernet Networks  
 RFC 2529 Transmission of IPv6 Packets over IPv4  
 RFC 2545 Use of MP-BGP-4 for IPv6  
 RFC 2710 Multicast Listener Discovery (MLD) for IPv6  
 RFC 2740 OSPFv3 for IPv6  
 RFC 3587 IPv6 Global Unicast Address Format  
 RFC 3810 Multicast Listener Discovery Version 2 (MLDv2) for IPv6  
 RFC 4007 IPv6 Scoped Address Architecture  
 RFC 4193, Unique Local IPv6 Unicast Addresses  
 RFC 4291 IP Version 6 Addressing Architecture  
 RFC 4443 ICMPv6  
 RFC 4552 Authentication/Confidentiality for OSPFv3  
 RFC 5072 IP Version 6 over PPP  
 RFC 5095 Deprecation of Type 0 Routing Headers in IPv6

#### MIBs

RFC 1157 A Simple Network Management Protocol (SNMP)  
 RFC 1215 A Convention for Defining Traps for use with the SNMP  
 RFC 1657 BGP-4 MIB  
 RFC 1724 RIPv2 MIB  
 RFC 1850 OSPFv2 MIB  
 RFC 1907 SNMPv2 MIB  
 RFC 2011 SNMPv2 MIB for IP  
 RFC 2452 IPV6-TCP-MIB  
 RFC 2465 IPv6 MIB  
 RFC 2571 SNMP Framework MIB  
 RFC 2572 SNMP-MPD MIB  
 RFC 2573 SNMP-Notification MIB  
 RFC 2573 SNMP-Target MIB  
 RFC 2574 SNMP USM MIB  
 RFC 2578 Structure of Management Information Version 2 (SMIv2)  
 RFC 2665 Ethernet-Like-MIB  
 RFC 2819 RMON MIB  
 RFC 2863 The Interfaces Group MIB  
 RFC 3273 HC-RMON MIB  
 RFC 3414 SNMP-User based-SM MIB  
 RFC 3418 MIB for SNMP



### Technical Specifications

RFC 1812 IPv4 Routing  
RFC 1877 PPP Internet Protocol Control Protocol Extensions for Name Server Addresses  
RFC 1989 PPP Link Quality Monitoring  
RFC 1990 The PPP Multilink Protocol (MP)  
RFC 1994 PPP Challenge Handshake Authentication Protocol (CHAP)  
RFC 2082 RIP-2 MD5 Authentication  
RFC 2131 DHCP  
RFC 2453 RIPv2  
RFC 2516 A Method for Transmitting PPP Over Ethernet (PPPoE)  
RFC 2615 PPP over SONET/SDH (Synchronous Optical Network/Synchronous Digital Hierarchy)  
RFC 2787 Definitions of Managed Objects for VRRP  
RFC 2878 PPP Bridging Control Protocol (BCP)  
RFC 3046 DHCP Relay Agent Information Option  
RFC 3596 DNS Extensions to Support IP Version 6  
RFC 3768 VRRP  
RFC 5286 Basic Specification for IP Fast Reroute: Loop-Free Alternates  
RFC 5382 The IP Network Address Translator (NAT)  
RFC 5508 NAT Behavioral Requirements for ICMP  
RFC 5880 Bidirectional Forwarding Detection  
RFC 5881 BFD for IPv4 and IPv6 (Single Hop)  
RFC 5883 BFD for Multihop Paths

#### IP multicast

RFC 1112 IGMP  
RFC 2236 IGMPv2  
RFC 2362 PIM Sparse Mode  
RFC 3376 IGMPv3  
RFC 3446 Anycast Rendezvous Point (RP) mechanism using Protocol Independent Multicast (PIM) and Multicast Source Discovery Protocol (MSDP)  
RFC 3618 Multicast Source Discovery Protocol (MSDP)  
RFC 4601 PIM Sparse Mode  
RFC 4604 Using Internet Group Management Protocol Version 3 (IGMPv3) and Multicast Listener Discovery Protocol Version 2 (MLDv2) for Source-Specific Multicast  
RFC 4607 Source-Specific Multicast for IP  
RFC 4608 Source-Specific Protocol Independent Multicast in 232/8 (PIM SSM)  
RFC 4610 Anycast-RP Using Protocol Independent Multicast (PIM)

RFC 3826 AES for SNMP's USM MIB  
RFC 4133 Entity MIB (Version 3)  
RFC 4292 IP Forwarding Table MIB

#### MPLS

RFC 3031 Multiprotocol Label Switching Architecture  
RFC 3032 MPLS Label Stack Encoding  
RFC 3443 Time To Live (TTL) Processing in Multi-Protocol Label Switching (MPLS) Networks  
RFC 4182 Removing a Restriction on the use of MPLS Explicit NULL

#### Network management

RFC 1157 SNMPv1  
RFC 1215 Convention for defining traps for use with the SNMP  
RFC 2571 SNMP Management Frameworks  
RFC 2572 Message Processing and Dispatching for the Simple Network Management Protocol (SNMP)  
RFC 2573 SNMP Applications  
RFC 2574 SNMPv3 User-based Security Model (USM)  
RFC 2575 SNMPv3 View-based Access Control Model (VACM)  
RFC 2576 Coexistence between SNMP versions  
RFC 2578 SMIv2  
RFC 2819 Remote Network Monitoring Management Information Base  
RFC 3164 BSD syslog Protocol  
RFC 3411 An Architecture for Describing Simple Network Management Protocol (SNMP) Management Frameworks  
RFC 3412 Message Processing and Dispatching for the Simple Network Management Protocol (SNMP)  
RFC 3413 Simple Network Management Protocol (SNMP) Applications  
RFC 3414 SNMPv3 User-based Security Model (USM)  
RFC 3418 Management Information Base (MIB) for the Simple Network Management Protocol (SNMP)  
RFC 4292 IP Forwarding Table MIB

#### OSPF

RFC 1765 OSPF Database Overflow  
RFC 2328 OSPFv2  
RFC 2370 OSPF Opaque LSA Option  
RFC 3101 OSPF NSSA  
RFC 3137 OSPF Stub Router Advertisement  
RFC 3623 Graceful OSPF Restart

#### Security

RFC 2138 RADIUS Authentication  
RFC 2865 RADIUS Authentication  
RFC 2866 RADIUS Accounting



### Technical Specifications

RFC 4250 The Secure Shell (SSH) Protocol Assigned  
Numbers  
draft-grant-tacacs-02 (TACACS)  
SSHv1/SSHv2 Secure Shell

### Accessories

#### Alcatel-Lucent 7750 Service Router Series accessories

##### **Alcatel-Lucent 7750 SR7 Switch Fabric and Control Processor Module DC Power Chassis Starter Bundle (JL136A)**

Alcatel-Lucent 7x50 1-port 100GBase LR4 CFP Single Mode 10km LC Connector Transceiver	JL153A
Alcatel-Lucent 7x50 1-port 100GBase SR10 CFP Multimode 100m MPO Connector Transceiver	JL154A
Alcatel-Lucent 7x50 1-port 40GBase LR4 QSFP+ Single Mode 10km LC Connector Transceiver	JL155A
Alcatel-Lucent 7x50 1-port 10GBase-SR SFP+ Multimode 300m LC Connector Transceiver	JL156A
Alcatel-Lucent 7x50 1-port 10GBase-LR SFP+ Single Mode 10km LC Connector Transceiver	JL157A
Alcatel-Lucent 7x50 1-port 1000BASE-SX SFP Multimode 550m LC Connector Transceiver	JL158A
Alcatel-Lucent 7x50 1-port 1000BASE-LX SFP Single Mode 10km LC Connector Transceiver	JL159A
Alcatel-Lucent 7x50 1-port 10/100/1000BASE-TX SFP RJ45 Connector Transceiver	JL160A
Alcatel-Lucent 7750 SR-7/12e AC Power Bundle	JL138A
Alcatel-Lucent 7x50 Integrated Media Module Full VPRN Support for up to 50Gb/s E-LTU	JL151AAE
Alcatel-Lucent 7x50 Integrated Media Module Full VPRN Support for up to 200Gb/s E-LTU	JL152AAE
Alcatel-Lucent 7750 SR-7/12/12e Release 13.0 Operating Software E-LTU	JL144AAE
Alcatel-Lucent 7750 SR SFM5-7 Switch Fabric Module and CPM5 Control Processor Module Bundle	JL137A
Alcatel-Lucent 7x50 1-port 100GbE CFP+ and 10-port 10GbE SFP+ IMM 8 VPRN E-LTU Bundle	JL145A
Alcatel-Lucent 7x50 3-port 40GbE QSFP+ and 20-port GbE SFP IMM 8 VPRN E-LTU Bundle	JL146A
Alcatel-Lucent 7x50 20-port 10GbE SFP+ Integrated Media Module 8 VPRN E-LTU Bundle	JL147A
Alcatel-Lucent 7x50 12-port 10GbE SFP+ Integrated Media Module 8 VPRN E-LTU Bundle	JL148A
Alcatel-Lucent 7x50 10-port 10GbE SFP+ and 20-port GbE SFP IMM 8 VPRN E-LTU Bundle	JL149A
Alcatel-Lucent 7x50 48-port GbE SFP Integrated Media Module 8 VPRN E-LTU Bundle	JL150A

##### **Alcatel-Lucent 7750 SR12 Switch Fabric and Control Processor Module DC Power Chassis Starter Bundle (JL139A)**

Alcatel-Lucent 7x50 1-port 100GBase LR4 CFP Single Mode 10km LC Connector Transceiver	JL153A
Alcatel-Lucent 7x50 1-port 100GBase SR10 CFP Multimode 100m MPO Connector Transceiver	JL154A
Alcatel-Lucent 7x50 1-port 40GBase LR4 QSFP+ Single Mode 10km LC Connector Transceiver	JL155A
Alcatel-Lucent 7x50 1-port 10GBase-SR SFP+ Multimode 300m LC Connector Transceiver	JL156A
Alcatel-Lucent 7x50 1-port 10GBase-LR SFP+ Single Mode 10km LC Connector Transceiver	JL157A
Alcatel-Lucent 7x50 1-port 1000BASE-SX SFP Multimode 550m LC Connector Transceiver	JL158A
Alcatel-Lucent 7x50 1-port 1000BASE-LX SFP Single Mode 10km LC Connector Transceiver	JL159A
Alcatel-Lucent 7x50 1-port 10/100/1000BASE-TX SFP RJ45 Connector Transceiver	JL160A
Alcatel-Lucent 7750 SR-12 AC Power Bundle	JL141A
Alcatel-Lucent 7x50 Integrated Media Module Full VPRN Support for up to 50Gb/s E-LTU	JL151AAE
Alcatel-Lucent 7x50 Integrated Media Module Full VPRN Support for up to 200Gb/s E-LTU	JL152AAE
Alcatel-Lucent 7750 SR-7/12/12e Release 13.0 Operating Software E-LTU	JL144AAE
Alcatel-Lucent 7750 SR SFM5-12 Switch Fabric Module and CPM5 Control Processor Module Bundle	JL140A
Alcatel-Lucent 7x50 1-port 100GbE CFP+ and 10-port 10GbE SFP+ IMM 8 VPRN E-LTU Bundle	JL145A
Alcatel-Lucent 7x50 3-port 40GbE QSFP+ and 20-port GbE SFP IMM 8 VPRN E-LTU Bundle	JL146A
Alcatel-Lucent 7x50 20-port 10GbE SFP+ Integrated Media Module 8 VPRN E-LTU Bundle	JL147A
Alcatel-Lucent 7x50 12-port 10GbE SFP+ Integrated Media Module 8 VPRN E-LTU Bundle	JL148A
Alcatel-Lucent 7x50 10-port 10GbE SFP+ and 20-port GbE SFP IMM 8 VPRN E-LTU Bundle	JL149A
Alcatel-Lucent 7x50 48-port GbE SFP Integrated Media Module 8 VPRN E-LTU Bundle	JL150A

##### **Alcatel-Lucent 7750 SR12e Switch Fabric and Control Processor Module DC Power Chassis Starter Bundle (JL142A)**

Alcatel-Lucent 7x50 1-port 100GBase LR4 CFP Single Mode 10km LC Connector Transceiver	JL153A
Alcatel-Lucent 7x50 1-port 100GBase SR10 CFP Multimode 100m MPO Connector Transceiver	JL154A
Alcatel-Lucent 7x50 1-port 40GBase LR4 QSFP+ Single Mode 10km LC Connector Transceiver	JL155A

### Accessories

Alcatel-Lucent 7x50 1-port 10GBASE-SR SFP+ Multimode 300m LC Connector Transceiver	JL156A
Alcatel-Lucent 7x50 1-port 10GBASE-LR SFP+ Single Mode 10km LC Connector Transceiver	JL157A
Alcatel-Lucent 7x50 1-port 1000BASE-SX SFP Multimode 550m LC Connector Transceiver	JL158A
Alcatel-Lucent 7x50 1-port 1000BASE-LX SFP Single Mode 10km LC Connector Transceiver	JL159A
Alcatel-Lucent 7x50 1-port 10/100/1000BASE-TX SFP RJ45 Connector Transceiver	JL160A
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Alcatel-Lucent 7x50 20-port 10GbE SFP+ Integrated Media Module 8 VPRN E-LTU Bundle	JL147A
Alcatel-Lucent 7x50 12-port 10GbE SFP+ Integrated Media Module 8 VPRN E-LTU Bundle	JL148A
Alcatel-Lucent 7x50 10-port 10GbE SFP+ and 20-port GbE SFP IMM 8 VPRN E-LTU Bundle	JL149A
Alcatel-Lucent 7x50 48-port GbE SFP Integrated Media Module 8 VPRN E-LTU Bundle	JL150A

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